The Information Age

Did you know that the White House has a Snapchat account? Or that 65% of adults between the ages of 50 and 64 use social networking sites and that adults 55 to 64 are the fastest growing Twitter users? In fact, adults 50 and older are part of the fastest growing segment using the Internet on a regular basis. These advances are all thanks to the information age. Also referred to as the computer or digital age, the information age sparked a new era in the late 1960s when vast amounts of information became regularly available through computer and digital technology. The advent of cell phones and smartphones in the 1990s and 2000s offered people the ability not only to stay in touch on the go with friends and family but also to stay connected to them through outlets such as email and social media.

Do you recall life before the Internet? If you’re a typical college-age student, the answer is likely no. Since 1991 when the Web became publically available, we have seen the rates of online use skyrocket. For example, from 2007 to 2012, the number of Internet users doubled from 1 billion to 2 billion users, with 87% of U.S. adults reporting they use the Web. The online world itself has changed in its scope, from being a primarily information-based network to what is coined Web 2.0, which relies in part on the collaborative and interactive nature of users (think of Wikipedia as a good example). A large component of Web 2.0 reflects the rise of social media, which allows millions of users to provide content and input. Once geared toward the younger population, social media developers are now turning their focus primarily from the online habits of that generation and are directing efforts to understand better how the older adult population uses and navigates the online world. If you cannot imagine life without computers, the Internet, or your smartphone, imagine the difficulty older adults face while living with the rapidly changing technological environment. You may scoff at a grandparent (or even parent!) who uses a flip phone but remember that for a long time there were only rotary phones. Don’t know what a rotary phone is? Google it!

At the beginning of each chapter, we will discuss the impact that the information age has had on the aging population with respect to the chapter’s content. Interested in how the Internet has changed the workforce or whether computers have enhanced older adults’ memory functioning? Stay tuned! Our hope is you find these snippets of information thought provoking and engaging. Perhaps you will even be inspired to help an older adult in your life open a Facebook account or learn how to download a smartphone app!
Aging affects everyone. Your aging process began the moment you were born. If you are of traditional college age, you’re undergoing a time of transition that lasts from adolescence to adulthood. The concept of being an adult may be new to you, and the idea of being an older adult may seem far off. Our purpose in writing this book is to help you think about your own aging as well as the aging process more generally. You may have decided to take this course to help you understand your aging family members or trends in society and before long, we hope that you also think about what will happen to you as you yourself get older.

Let’s start by asking you what comes to mind when you think of your current age. Is it an important part of who you are or do you not think about your actual age? Next, ask yourself whether you consider yourself to be an adult. What does the word adult mean to you? Is it a term you would use to describe others who are older than you are now? Finally, what are your thoughts about the aging process? When you think of older adults, do you immediately regard them as unable to care for themselves? What is the “typical” older adult like, in your eyes?

Just by thinking about these questions, you’ve already started to focus on what age means in terms of your overall sense of self. These are the types of questions that we’ll explore throughout the book. Even as we discuss in-depth the effects of the aging process throughout adulthood, we will often come back and question how much we really know about a person based on age alone. We’ll also show you that some age distinctions are almost arbitrary. Someone decided that a certain age means you’re in a certain stage of life; from that point forward, people attribute a great deal of meaning to that particular number. In reality, however, the aging process isn’t completely linked to the passage of time alone.

Our goal is to encourage you to take personal explorations as you gain factual information about the aging process. Not only will the material help you in your career regardless of what field you go into, but it will also help you understand yourself and how you change over time. You’ll also learn, perhaps surprisingly, that you don’t have to sit back and let the aging process passively affect you. There are active steps you can be taking now to make sure that you keep functioning as well as possible for as long as possible throughout your entire life. With a few simple precautions, you can avoid the illnesses that limit people’s ability to enjoy themselves into their later decades.

If you’re a traditional college-age student heading into your 20s, we hope to help you appreciate that it is never too early to start incorporating these changes into your lifestyle. And for our readers of nontraditional college age, we hope to help you see that it’s never too late to initiate behaviors that can maintain, if not enhance, your everyday functioning. A key goal we have in writing this book is to involve you in the progression of your aging process and show you ways to be an active part of your own development.

THE BIOPSYCHOSOCIAL PERSPECTIVE

We organize the book around the biopsychosocial perspective, a view of development as a complex interaction of biological, psychological, and social processes. Aging is not a simple, straightforward progression through time. Your body undergoes biological changes largely influenced by your genetics or physiology. At the same time, you change psychologically in ways that reflect what’s happening to your body that, in turn, affect your body’s changes. All of this takes place in a social context. Holding biology and psychology constant, people age differently depending on where and when they live, whom they interact with, and what resources they have available to them.

Figure 1.1 captures this complex biopsychosocial interaction. Biological processes refer to how the body’s functions and structures change throughout the aging process. We cover these changes in the chapters on normal aging and health. Psychological processes include the individual’s thoughts, feelings, and behaviors related to growing older. We examine these changes in the chapters on cognition, personality, and emotions. The social processes of aging reflect the cultural, historical, and interpersonal influences on the individual. We cover

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<th>Biological</th>
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<td>• Physiological factors</td>
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these in chapters about relationships, family, work, and institutionalization. In Chapter 2, we will explore how life-span development theories grapple with explaining how these complex processes all interrelate. You’ll find that there’s a great deal more to aging than you probably imagined when you first started reading this chapter.

As you can see from the biopsychosocial model, we intend to go beyond “psychology” in teaching you about the processes involved in adult development and aging. In fact, gerontology, the scientific study of the aging process, is an interdisciplinary field. People who devote their professional lives to the study of gerontology come from many different academic and applied areas—biology, medicine, nursing, sociology, history, and even the arts and literature. It’s almost impossible to be a gerontologist without applying this integrative view to your work. Knowledge, theories, and perspectives from all disciplines contribute importantly to the study of the individual over time.

To help put it all together for you as you develop throughout adulthood, we will pay special attention to the concept of identity. Identity is defined as a composite of how people view themselves in the biological, psychological, and social domains of life. The interaction of these domains forms an overall view of the “self.”

**FOUR PRINCIPLES OF ADULT DEVELOPMENT AND AGING**

We begin our study of adult development and aging by sharing a set of four principles that form the foundation of our biopsychosocial approach (see Table 1.1). As you read the book, you’ll find that we return frequently to these principles, which we highlight when they appear in the chapter. If you begin to understand them now, you will find the course material much easier to master.

**1. Changes Are Continuous Over the Life Span**

First and foremost, changes over the life span happen in a continuous fashion. According to the continuity principle, the changes that people experience in later adulthood build on the experiences they had in their earlier years. This means we can never isolate the later years of life without considering the years preceding them. Since time moves in a forward direction, the changes throughout life build upon themselves in a cumulative fashion. If you were hard on your body as a young adult, chances are the changes you’ll undergo when you’re older will be more negative than if you took good care of yourself.

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**TABLE 1.1**

The Four Principles of Adult Development and Aging

<table>
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<tr>
<th>Principle</th>
<th>Meaning</th>
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<tr>
<td>1. Changes are continuous over the life span</td>
<td>Individuals remain the “same” even though they change</td>
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<tr>
<td>2. Only the survivors grow old</td>
<td>Aging individuals are increasingly self-selected</td>
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<tr>
<td>3. Individuality matters</td>
<td>People vary within and between age groups</td>
</tr>
<tr>
<td>4. Normal aging is different from disease</td>
<td>Intrinsic aging processes are different from those associated with illness</td>
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</table>

The continuity principle also applies to the way that people think about their own identities. You know that you’re the same person you always were, despite getting older. Birthdays don’t transform you into a different person. You don’t look the same to others, but you feel essentially the “same” on the inside.

When others look at you, however, they don’t necessarily share this perspective. People don’t meet you for the first time and think about what you were like when you were younger—they see you as you are now. Unless they are close relatives or friends, they have no way of knowing what you were like when you were in your childhood or teenage years. Anyone meeting you now judges you on the basis of your current appearance because he or she has no other data from which to draw.

Similarly, when you look at a middle-aged or older adult, it’s unlikely that you judge that person on the basis of how he or she may have been in the past. You see an older woman, perhaps walking with a little difficulty, and don’t stop to think that she might have been a marathon runner in her youth. However, that very same older woman knows that she is the “same” person she’s always been. True, she can no longer compete for a marathon, but this accomplishment is part of her identity. She knows her physical abilities have changed, but to herself she’s still the Jane, Barbara, or Mary she has been her entire life.

There’s an important implication of the continuity principle for anyone working with older adults. You need to remember that they would prefer to be treated as the people they always were, rather than as “old people.” As we’ll see later, older adults are often stereotyped as weak and infirm, when in reality, they want to be viewed as individuals who possess strengths they have built up over their entire lives. They don’t want to be stereotyped on the basis of the way they look to the world right now.
Some nursing home administrators, eager to remind their employees of this fact, display pictures of the residents from their younger years on the nameplates outside their doors. The residents and their visitors think of them in this way, and it’s helpful if those who work with them are reminded of this fact as well.

2. Only the Survivors Grow Old

The survivor principle states that the people who live to old age are the ones who managed to outlive the many threats that could have caused their deaths at earlier ages. Perhaps this is obvious because clearly, to grow old, you have to not die. However, the survivor principle is a bit more complex than that. Contrary to the Billy Joel song “Only the Good Die Young,” it’s not the good who die young, but the ones who fall victim to the forces that cause people to lose their lives. Some of these are random, such as being killed by someone else in an accident, by an act of war, or in a natural disaster. However, many other factors that lead some to survive into old age are nonrandom. Survivors not only manage to avoid random causes of their own fatalities but also are more likely to take care of their health, not engage in risky behaviors (such as driving too fast or getting involved in crime), or using drugs and alcohol excessively.

The survivor principle exemplifies the biopsychosocial perspective. The very fact that survivors avoid death until late in life suggests that they may have inherited good genes or at least managed to maintain their physical abilities (biological factors), are cognitively and emotionally healthy (psychological factors), and have surrounded themselves with a good support system (social factors). Furthermore, these factors build on each other. People with stronger cognitive skills are more likely to attend college which, in turn, provides them with greater economic resources that can sustain their health and well-being. A combination of mental and physical health and adequate resources, plus a dose of good luck, allow them to be with us today.

Table 1.2 shows the five most common behaviors that prevent people from living a longer life (Kamimoto, Easton, Maurice, Husten, & Macera, 1999). We derived this list from the U.S. Centers for Disease Control and Prevention (CDC), and although the list dates back to 1999, the same survival tactics hold true today. We decided to call them, ironically, “Five Ways to Shorten Your Life” to highlight the fact that if you want to make sure you don’t survive, these will guarantee that outcome. Most people would prefer not to shorten their lives, and certainly not to develop poor health in their later years, but they still go on to engage in behaviors that will have these effects. Survivors, for whatever reason, managed to avoid falling into these traps and are therefore healthier and longer-living than the ones who did.

The survivor principle has important theoretical implications. Survivors are not like the people born at the same time as they were. They may have been born with greater resilience, but they also likely took care to maintain their health and preserve their longevity. There are so many ways to lose one's life as you get older, from such causes as terminal illness or accidents, that to become an older adult, you have to possess some incredibly special characteristics.

The survivor principle also impacts the way we understand research on aging. Clearly, all older adults who participate in research are survivors of the conditions that

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**TABLE 1.2**

Five Ways to Shorten Your Life

| 1. Being overweight |
| 2. Drinking and driving |
| 3. Eating inadequate fruits and vegetables |
| 4. Being physically inactive |
| 5. Smoking |

others did not endure. As time goes by, more and more of the older population will die. When they reach age 90 or 100, they most likely represent a different population than their now-deceased age mates. The older they get, the more select they become in such key characteristics as physical functioning, health, intelligence, and even personality (Baird, Lucas, & Donnellan, 2010).

Consequently, when we examine differences between younger and older people, we must keep in mind that older people alive today were a special group when they were young. The younger adults have not yet been subjected to the same conditions that could threaten their lives. Some of them will die before they reach old age. Knowing who will be the survivors is almost impossible to predict, of course, meaning we may be comparing highly select older adults with a wider range of younger adults. Therefore, we cannot conclude that age ‘caused’ the older adults to have the characteristics they have now because they might always have been a special subset of their own age group.

To help illustrate this principle, consider data on the psychological characteristic of cautiousness. One of the tried and true findings in the psychology of adult development and aging contends that older people are less likely to take risks than are younger people. Similarly, older adults are less likely to engage in criminal behavior. It’s possible that as people age they are better able to avoid behaving in ways that could bring them harm or get them arrested. Alternatively, it’s possible that they did not change at all and are the only ones left standing from their generation. The people more likely to make risky decisions early on in life died at younger ages or were imprisoned. Certainly, those who made poor health decisions would be less likely to have survived into old age.

As a result of the survivor principle, you need to remind yourself continually throughout this book that the older adults we study may have become less risky, more honest, or better able to take care of their health. On the other hand, they may not have changed at all—only survived long enough for us to study them.

3. Individuality Matters

A long-held myth regarding development is that as people age, they all become alike. This view is refuted by the principle of individuality, which asserts that as people age, they become more different from each other. This divergence occurs in people’s physical functioning, psychological performance, relationships, interest in work, economic security, and personality.

In one often-cited study, still considered relevant, researchers examined a large number of studies of aging to compare the divergence among older versus younger adults on measures of the same characteristics (Nelson & Dannefer, 1992). Research continues to underscore the notion that individuals continue to become less alike from each other with age. Such findings suggest that diversity becomes an increasingly prominent theme during the adult years, a point we will continue to focus on throughout this book.

The idea of increasing divergence among older adult populations does not mean that everyone starts out at exactly the same point when they’re young. There are always going to be differences within any sample of people in almost any characteristic you can name. The issue is that as people get older, these differences become magnified. The top-performing person in a sample of young adults may be 10 points higher than the next highest performer. By the time, this person reaches his or her 70s or 80s, these differences may grow by a factor of two, three, or more. In part, this is a statistical fluke. As you’ll learn in Chapter 3, it’s difficult to find a sample of older adults who are as close in age as are the young adults researchers tend to study (who are often within 2 or 3 years of each other). If age is related to performance, then the odds are that the older group will differ simply because they differ more in age.

However, the increasing variation among older adults isn’t just a statistical artifact. Even if you had a sample of older adults who were exactly the same age, it’s likely that they would differ more among themselves than they would have when they were younger because they’ve lived through more experiences affecting everything from their health to their psychological well-being. Those experiences have cumulative effects, causing them to change at different rates and to differing degrees.

Consider what’s happened to you and the people you grew up with by this point in your life. You have made the decision to go to college, while others in your age group may have enlisted in military service. You may meet your future spouse in college, while your best friend remains on the dating scene for years. Upon graduation, some may choose to pursue graduate studies as others enter the workforce. You may or may not choose to start a family, or perhaps have already begun the process. With the passage of time, your differing experiences build upon each other to help mold the person you become. The many possibilities that can stem from the choices you make help illustrate that the permutations of events in people’s lives are virtually endless. Personal histories move in increasingly idiosyncratic directions with each passing day, year, and decade of life.

There are actually two types of differences that come into play when we talk about individuality. Interindividual differences are differences between people. We’ve shown
This figure shows age differences in the volume of cells in the hippocampus, a part of the brain involved in memory. The straight line shows that people in their 70s may have the same brain volumes as people in their 20s.


an example of interindividual differences in Figure 1.2. In this figure, each dot in the graph on the right represents the size of the hippocampus, a part of the brain involved in memory thought to grow smaller as people get older. As you can see, people of the same age can vary so dramatically from one another that they may more closely resemble people from different age groups. Follow the straight line showing two dots—one representing a 20-year-old and one representing data from a 70-year-old. The hippocampus of this 70-year-old actually equals that of at least one 20-year-old. Many of the 70-year-olds have hippocampal sizes that equal those of people in their 40s. These interindividual differences clearly show that not all 70-year-olds are alike.

As this example shows, some older adults can outperform younger adults on tasks typically shown to decline with age. This sort of occurrence happens in many areas of study. Although traditionally younger adults have faster reaction times than older adults, exceptions to the norm are common. While you may think of average-age college students as being able to run faster, lift heavier weights, or solve crossword puzzles in a shorter time than people three times their age, consider the differences between a sedentary 21-year-old and a 72-year-old triathlete. Chances are, the triathlete will outperform the sedentary adult in all categories. We will continue to explore the notion that functioning does not necessarily need to “go downhill” as people get older.

Intraindividual differences refer to the variations in performance within the same individual. In other words, not all systems develop at the same rate within the person. Some functions may increase over time, others decrease, and others stay the same. Even within a construct such as intelligence, an individual may show gains in one area, losses in another, and stability in yet another domain. Intra-individual differences illustrate the fact that development can proceed in multiple directions within the same person (Baltes & Graf, 1996), a concept known as multidirectionality.

4. “Normal” Aging Is Different From Disease

The principle that normal aging is different from disease means that growing older doesn’t necessarily mean growing sicker. It is important for both practical and scientific reasons to distinguish between normal aging and disease. Health care specialists who work with middle-age and older adults need to recognize and treat the onset of a disease rather than dismiss it simply as “getting older.” For example, an 80-year-old man exhibiting symptoms of depression can be successfully treated, assuming that the clinician does not write his symptoms off as a feature of normal aging. Personality development in adulthood does not inevitably lead to the depressive symptoms of lowered self-esteem, excessive guilt, changes in appetite, or lack of interest in activities. Older adults may experience some moderation in personality qualities such as becoming a bit less judgmental in relation to others. However, the development of psychological disorders for the first time in later life is not typical. Clinicians who mistakenly think that these symptoms are part of the normal aging process won’t take the proper course of treatment that could alleviate the depressed person’s suffering.

Gerontologists translate the principle that normal aging is different from disease into terms that distinguish these processes. Primary aging (or normal aging) refers to the normal changes over time that occur due to universal, intrinsic, and progressive alterations in the body’s systems. Changes over time leading to impairment due to disease rather than normal aging are referred to as secondary or impaired aging. These changes are not due to universal, intrinsic processes but are a function of an abnormal set of changes afflicting a segment rather than the entirety of the older population (Aldwin & Gilmer, 1999). Skin wrinkling and discoloration are examples of the development of skin cancer in later life and secondary aging.
The third type of aging process sets in toward the very end of life, when individuals experience a rapid loss of functions across multiple areas of functioning. This precipitous decline is called **tertiary aging** (Gerstorf, Ram, Lindenberger, & Smith, 2013). Representing the impact of disease on perhaps already compromised areas of functioning, tertiary aging deserves mention in its own right as distinct from primary or even secondary aging.

Primary, secondary, and tertiary aging refer to processes that, over time, accumulate, and in the absence of accident or injury, cause the individual’s death. Gerontologists believe that despite changes in the body that lead to loss, aging can also involve gains. The term refers to age-related changes that improve the individual’s functioning. Changes due to optimal aging may reflect the preventative or compensatory measures that adults take to counter the toll that aging would normally take on their physical and psychological functioning. However, some individuals do not even make special efforts to alter their own aging, but for reasons not always entirely clear, seem to age at a slower rate than their peers. They may be the ones who never seem to get sick right until the very end of their lives, when a sudden illness leads to their death (i.e., tertiary aging).

Throughout life, age-related losses due to primary, secondary, and tertiary aging occur contemporaneously, as we show in Figure 1.3. Thus, even while optimal aging can slow the deleterious changes of primary and secondary aging, eventually tertiary aging takes over and the individual’s life comes to an end. Remember that, according to the principles of intraindividual and interindividual variability, the rates of each type of aging vary within individuals and from person to person.

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**FIGURE 1.3**

Age-Related Losses and Gains

<table>
<thead>
<tr>
<th>Primary aging</th>
<th>Secondary aging</th>
<th>Tertiary aging</th>
<th>Optimal aging</th>
</tr>
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<tbody>
<tr>
<td>Normal age-related</td>
<td>Disease-related</td>
<td>Rapid decline shortly</td>
<td>Changes that improve</td>
</tr>
<tr>
<td>changes</td>
<td>impairments</td>
<td>before death</td>
<td>the individual’s</td>
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**THE MEANING OF AGE**

The study of aging implies that age is the major variable of interest. However, the scientific study of aging faces a challenge in that age carries with it a number of problems as that major variable of interest. To be sure, there is value in categorizing individuals in later life based on their age. At the same time, attaching a numerical value to people on the basis of their date of birth carries with it a certain arbitrariness. Chronological age is a number based on measures of the Earth’s movement around the sun; however, we don’t know how much the changes in the physical universe relate to what goes on inside the body in any kind of precise fashion.
Consider what happens when people’s ages change at a major birthday such as reaching the age of 40. The crossing from an age that ends in 9 to an age that ends in 0 may lead people to engage in self-scrutiny just because we’ve all been socialized to believe that 40 means something important. This belief is reinforced by birthday cards that invoke the “over the hill” metaphor. In truth, your body does not change in discrete fits and starts when you pass a particular birthday.

The body does keep time in a cycle that approximates a 24-hour period, but there is no evidence at the moment to suggest that this time pacemaker is related to aging. To say that chronological age (or time) “means” anything with regard to the status of the body’s functioning is, based on current evidence, questionable. The popularity of such phrases as “30 being the new 20” and “60 the new 50” capture the difficulty of defining people’s aging processes based solely on a number. Chronological age does have some value in describing a person, but like other descriptive features of a person, such as gender or eye color, it is the social meaning attached to chronological age that often outweighs any intrinsic usefulness. As we have already discussed, people of the same age can vary substantially from one another, and people of different ages can be more similar to each other than their differing age might lead you to expect.

Using Age to Define “Adult”

Now that we have you thinking about the meaning of age, we will move on to the next challenge—the meaning of the word “adult.” Earlier, we asked you to decide whether you consider yourself an adult. When you think of that word, perhaps the synonym of “mature” comes to mind. This, in turn, may conjure up images of a person reaching a certain level of accomplishment or growth. Consider, for example, the term “mature” in reference to an apple. A mature apple is one that is ready to be eaten, and you can judge that by examining the apple’s color, size, and texture. An apple’s maturity level is relatively easy to measure compared to judging the maturity of humans. The complexity of the biopsychosocial processes that occur within us are far more difficult to quantify.

You might think that the most logical definition of maturity should be based on physical development. Yet, you also know that a 13-year-old male who has essentially reached his full physical development would, in contemporary Western society, be regarded as anything but an adult. Although his physical attributes define him as an adult, the psychological and social standards would not.

Perhaps a standard based on ability is a better option. Consider 16 years, the age when most people can legally drive. Or, alternatively, consider age 18, when U.S. society ordains the person with the right to vote. Using the age of 21 presents another possible point of entry into adulthood. Because it is the age when American adults can legally drink alcohol, for many, the turning of 21 represents a defining mark of the beginning of adulthood. However, the United States is in a small minority of nations that set the drinking age at 21. Some Canadian provinces set the drinking age at 19 (though it is 18 in most); countries such as Germany, Barbados, and Portugal set it at 16. These conflicting age demarcations for even such a seemingly concrete behavior as drinking alcohol show that deciding when a person is an adult on this basis has very limited utility.

Parenthetically, the variations in the legal drinking age shown from country to country (and even within a country) illustrate the interaction of biological and sociocultural factors in setting age-based parameters around human behavior. People in Canada who are 18 years old are, on average, not all that physiologically distinct from 18-year-olds who live in France. For that matter, they are probably not even psychologically different. It’s the culture that distinguishes whether they’re able to drink alcohol without getting arrested.

If you’re like many students, the age of 25 may hold special importance for you. This is the age where, in the United States, you can rent a car (without having to pay a tremendous surcharge). This age has no inherent meaning, but it is used by car rental companies because the chances of having an auto accident are lower after the age of 25. It’s possible that a switch is flicked on a person’s 25th birthday so that the unsafe driver now has become a model of good behavior on the road. However, the odds are statistically higher that people under age 25 are more likely to engage in the risky combination of drinking and driving, which is what leads to the higher insurance premiums.

Another set of criteria related to the age of adulthood pertains to when people can marry without the consent of their parents. There again, we find huge variation. Within the United States alone, the age of consent varies from state to state (in South Carolina it is 14, while other states deem 16 or 18 the appropriate age). Moreover, the age when people actually marry reflects factors such as the health of the economy; in bad economic times, the median age of marriage goes well above the age of consent. During these times, people in their 20s (or older) may find they’re forced to move back in with their parents because they aren’t earning sufficient income to rent or buy their own place. Does that mean that people become less “adult” when the economy lags?

Given these contradictory definitions of “adult,” it might be wise to recommend that we set the threshold into adulthood based on the individual’s having reached the chronological age associated with the expectations and
The Meaning of Age

privileges of a given society or subculture. For example, in the United States, individuals may be considered to have reached adulthood at the age when they are eligible to vote, drink, drive, and get married. For the majority of U.S. states, the age of 21 is therefore considered the threshold to adulthood. In other countries, these criteria may be reached at the age of 18. Regardless of the varying definitions, up to as many as the first 10 or 11 years of adulthood represent the period of emerging adulthood, or the transition prior to assuming the full responsibilities associated with adulthood, normally the years 18 to 29 (Arnett, 2000). These responsibilities may occur during the years that follow college graduation or, for those individuals who do not attend college, when they face the need to find full employment or make family commitments.

Divisions by Age of the Over-65 Population

Traditionally, 65 years of age has been viewed as the entry point for “old age.” There was no inherent reason for the choice of this age other than that in 1889, the German Chancellor Otto von Bismarck decided to set this as the age when people could receive social insurance payments. Now, we accept age 65 without giving it much thought.

Gerontologists recognized long ago that not only was 65 an arbitrary number for defining old age, but that it also resulted in people being placed into too broad of a category when defined as older adults. All other things being equal, a 65-year-old faces very different issues than someone who is 85 or 90. There are certainly 65-year-olds in very poor health and 95-year-olds who have no serious ailments. But because, on average, 65-year-olds are so different than those who are 20 or more years older, we use a convention to break the 65-and-older category into subgroups.

The subgroups most frequently used in gerontology are young-old (ages 65 to 74); old-old (ages 75 to 84); and oldest-old (ages 85 and older). We shouldn’t place too much credence on numbers, as we’ve already said, but these are good approximations for roughly categorizing the 65-and-older population. Bernice Neugarten, one of the early pioneers in psychological gerontology, proposed these distinctions in the mid-1960s, and they have remained in use to this day even though 85 may be the “new” 65 with the oldest-old being in better health than they were 50 years ago.

With more and more people living to the oldest-old category as defined in this manner, gerontologists are reexamining the divisions of the 65+ age group. Specifically, people over the age of 100, known as centenarians, are becoming more and more commonly represented in the population, as we will show later in the chapter. It will not be long before the very highest age category becomes more prominent—the supercentenarians, who are 110 and older. Typically, the oldest person in the world at any given time is between the ages of 114 and 116. Jeanne Louise Calment, the oldest documented living human, was 122 at the time of her death. Supercentenarian will probably retain its definition as 110 and over, though, at least for the foreseeable future.

Functional Age

Discontented with the entire concept of chronological age, a number of gerontologists are devising a new classification system that is based not on what the calendar says but on functional age, which is how people actually perform (see Figure 1.4). With functional instead of chronological age as the basis for a system of studying aging, we could gain a better grasp of a person’s true characteristics and abilities. When we talk about research methods in Chapter 3, we’ll see further advantages to using measures other than chronological age to study the aging process.

Biological age is the age of an individual’s bodily systems. Using biological age instead of chronological age would tell us exactly how well people are able to perform such vital functions as the heart’s pumping blood through the arteries and getting oxygen to the lungs. With biological age, you could also help people learn how best to improve their muscle and bone strength.

In order to be able to use biological age as an index, we would need a large repository of data showing what’s to be expected for each major biological function at each age. For example, we’d need to know the population

FIGURE 1.4

Alternative Indices of Aging

- Biological
  - Functioning of organ systems
- Psychological
  - Functioning on psychological tests
- Social
  - Social roles occupied by the individual
values for blood pressure readings in people with different chronological ages. Then, we would assign people a “blood pressure age” according to which chronological age of healthy people their numbers most closely match. A 50-year-old whose blood pressure was in the range of normal 25- to 30-year-olds would then have a biological age that was 20 or 25 years younger than his or her chronological age.

Popular culture has certainly caught on to the notion of biological rather than chronological age. There are a multitude of online calculators in which you answer various questions to estimate how long you will live. In addition, there are slightly more sophisticated “biological age tests” that let you calculate your “lung age,” for example.

Another, far more sophisticated approach, involves measuring cellular aging. When exposed to harmful environmental conditions, the body’s cells undergo important changes affecting their ability to function normally. By indexing these changes, researchers can develop a scale that assesses biological functioning at this very basic level (Hannum et al., 2013).

**Psychological age** refers to the performance an individual achieves on measures of such qualities as reaction time, memory, learning ability, and intelligence (all of which are known to change with age). Like biological age, a person’s performance on these tasks would be compared with those of other adults and then scaled accordingly.

**Social age** is calculated by evaluating where people are compared to the “typical” ages expected for people to be when they occupy certain positions in life. These positions tend to center on family and work roles. For example, a grandparent would have an older social age than would a parent, although the grandparent might easily be chronologically younger than the parent.

Social age can have some interesting twists. For example, people can be grandmothers in their late 20s (with a social age of 60 or older). Conversely, women can become mothers in their late 60s. Perhaps you have a friend whose grandmother is 93 and another whose grandmother is 57. We see the same issue with regard to work roles. A 70-year-old who is still working has a younger social age than a 66-year-old who has retired. Athletes and politicians present a similar contrast. A gymnast may be more typical of a person in the 70s. Psychological age and social age indices are also likely to change over time.

Despite its faults, chronological age may be the most expedient index for many areas of functioning. Just keep in mind that it does not tell the whole story.

**Personal Versus Social Aging**

The aging process occurs within the individual, but as you have learned already, it is shaped by events occurring in the individual’s social context. When developmental psychologists study the aging process, it is difficult to disentangle those internal changes from those that reflect a changing world, though we try to do so by applying the appropriate controls in our research.

**Personal aging** refers to changes that occur within the individual and reflect the influence of time’s passage on the body’s structures and functions. This is how people ordinarily think of the aging process and, indeed, it is what is implied in primary, secondary, and tertiary aging.

**Social aging** refers to the effects of a person’s exposure to a changing environment. Over time, the changes we see within the individual represent the unique blend of personal and social aging as these play out in that individual’s life.

Within the category of social aging, the changes that take place in an individual’s life are seen as reflecting a multitude of interacting factors. At any one time, the individual’s life reflects one or more of three basic categories of three social influences (see Figure 1.5). These influences, identified by psychologist Paul Baltes (1979) and still seen as relevant today, include normative age-graded influences, normative history-graded influences, and nonnormative influences. We’ll look at each of these in turn.

**Normative age-graded influences** lead people to choose experiences that their culture and historical period attach to certain ages or points in the life span. The term “normative” stems from the term “norm,” which is a social expectation for behavior. In Western society, age norms traditionally dictate that individuals graduate from college in their early 20s, get married and begin a family in their
The Meaning of Age

Normative age-graded
- Cultural norms

Normative history-graded
- Events that affect everyone

Nonnormative
- Random events
- Idiosyncratic

FIGURE 1.5
Types of Developmental Influences

20s or 30s, retire in their 60s, and become grandparents in their middle to later years, usually in the decades of the 50s, 60s, and beyond. These are influences on behavior to the extent that people believe that they should structure their lives according to these age demarcations.

Events that occur in response to normative age-graded influences occur in part because a given society has developed expectations about what is assumed appropriate for people of certain ages. The decision to retire at the age of 65 years can be seen as a response to the norm more true perhaps in the past than today, that 65 is the correct age to leave the labor market. Graduation from high school generally occurs at the age of 18 years for most because in most industrialized societies, children start school at the age of 5 or 6 and the educational system is based on 12 or 13 grades.

Normative age-graded influences exert their impact beyond what the norms themselves imply because people are socialized into believing that they should structure their lives so that they conform to these influences. When people don't adhere to these norms, for whatever reasons, they feel that there is something wrong with them. For example, a 40-year-old office worker may consider retiring but feel reluctant to do so because it is not what is expected for a person of that age in that field of employment. Similarly, a 35-year-old may prefer not to marry or to have children, but feel pressured into doing so by other family members, friends, or the society at large by virtue of having reached their mid-30s.

The normative age-graded influences are partly linked to the biological aging process. Parenthood traditionally occurs between the ages of 20 and 40, at the peak of a woman's reproductive cycle. This age range sets the normative age period for biologically becoming a parent. Once this age is set, then a lower limit is set on the age at which the adult can become a grandparent. If the child also follows a normative age-graded influence, the parent will likely become a grandparent for the first time between the ages of 55 and 65 years. Similarly, manual laborers or athletes may be at peak physical capacity up to their 40s, when they may experience loss of strength and speed.

Now let's turn to the second set of influences on development, those that relate to the impact of events in the outside world on the individual. Normative history-graded influences are events that occur to everyone within a certain culture or geopolitical unit (regardless of age) and include large-scale occurrences, such as world wars, economic trends, or sociocultural changes in attitudes and values. The impact of these events on people's lives may be felt immediately. They can continue to have a lasting impact for many years on the subsequent patterns of work, family, and quality of life of the people affected by those events. For example, World War II veterans who entered the military after their families were already established were more likely upon their return to get divorced or separated, to suffer career setbacks, and experience poorer physical health after they turned 50 (Elder, Shanahan, & Clipp, 1994). Had they not gone off to war, their lives may have taken a more stable course.

An individual does not have to experience a historical event directly to be affected by a normative history-graded influence. For example, in 2015, several large terrorist attacks took place in Paris, France. The impact of these events reverberated throughout Europe and North America, in particular. Anytime there is a significant enough event or set of events affecting a large number of people, the event's aftermath may continue to impact aspects of each person's life for years to come.

If the life course was influenced only by normative age- and history-graded influences, predicting the course of development of people of the same age living in the same culture would not be easy, but it would be a manageable problem. Plug in a person's age and the year of the person's birth, and you'd be able to figure out which combination of age-graded and history-graded influences set the course of that person's life. However, people's lives are also affected by nonnormative influences, which are the random idiosyncratic events that occur throughout life. They are "nonnormative" because they occur with no regular predictability.

There are almost an infinite number of examples of nonnormative influences. Some are due to good luck, such as winning the lottery or making a smart investment. Nonnormative influences can also be negative, such as a
The devastating effects of California wildfires impact hundreds of lives on a continual basis, providing an example of normative history-graded influence.

car accident, fire, or the untimely death of a relative. One moment your life is routine and predictable, and in the next, a single event irrevocably alters it. Other nonnormative influences may unfold over a gradual period, such as being fired from a job (due to personal, not large-scale economic reasons), developing a chronic illness not related to aging, or going through a divorce. In everyday language, you talk about someone benefiting from the “right place, right time” effect or—conversely—suffering a negative fate from the opposite set of coincidences.

As you have read about the various types of influences on life, it may have crossed your mind that the way in which they interact with each other is also important. Consider the example of divorce. Although society’s norms have changed considerably regarding this life event, many would still consider this a nonnormative occurrence because the norm (and certainly the hope) of married couples is to remain married. And although a divorce is a personal occurrence, it may be seen in part as a response to larger social forces. For example, a couple who is exposed to financial hardship because one or both partners lost a job due to living in harsh economic times (normative historical influence) is now faced with severe emotional stress. If they are in their middle years, when couples are expected to have reached a degree of financial comfort (age-graded normative influence), their problems may be exacerbated. Yet, some couples may feel closer to each other when exposed to such adversity, and this is where the idiosyncratic nonnormative factors come into play.

This example illustrates the dilemmas faced by researchers in human development who attempt to separate out not only personal from social aging but also the impact of particular influences that fall into the category of social aging. Though challenging, the very complexity of the equation fascinates those of us who try to understand what makes humans “tick” and what causes that ticking to change over the decades of the human life span.

KEY SOCIAL FACTORS IN ADULT DEVELOPMENT AND AGING

As we’ve just seen, social factors play an important role in shaping the course of our lives. Here we make explicit exactly how we define and use the key social factors that we will refer to in this book.

Sex and Gender

In discussing the aging process, there are important male–female differences related to the socialization experiences of men and women. We will use the term gender to refer to the individual’s identification as being male or female. Gender is distinct from biological sex, which refers to the individual’s inherited predisposition to develop the physiological characteristics typically associated with maleness or femaleness. Both sex and gender are important in the study of adult development and aging. Physiological factors relevant to sex influence the timing and nature of physical aging processes, primarily through the operation of sex hormones. For example, the sex hormone estrogen is thought to play at least some role in affecting a woman’s risks of heart disease, bone loss, and possibly cognitive changes.
Social and cultural factors relevant to gender are important to the extent that the individual assumes a certain role in society based on being viewed as a male or female. Opportunities in education and employment are two main areas in which gender influences the course of adult development and becomes a limiting factor for women. Although progress has certainly occurred in both domains over the past several decades, women continue to face a more restricted range of choices and the prospects of lower earnings than do men. Furthermore, these differences are important to consider when studying the current generation of older adults, as they were raised in an era with more traditional gender expectations.

The phenomenon of transgendered individuals (i.e., those who choose to adopt the sex opposite to that they were born with) is too recent to have produced enough information relevant to aging. We might expect that this will become an area studied by gerontologists, particularly because it also highlights the role of social influences on development. Prior to the decade of the 2010s, there was relatively little social awareness of the experience of transgendered individuals and aging but this is rapidly changing (Kimmel, Hinrichs, & Fisher, 2015).

Race

A person’s race is defined in biological terms as the classification within the species based on physical and structural characteristics. However, the concept of race in common usage is broader than these biological features. Race is used in a more widespread fashion to refer to the cultural background associated with being born within a particular biologically defined segment of the population. The “race” that people use to identify themselves is more likely to be socially than biologically determined. In addition, because few people are solely of one race in the biological sense, social and cultural background factors assume even greater prominence.

The U.S. census, a count of those living in the United States conducted every 10 years, attempts to provide an accurate depiction of the size and makeup of the country. The 2010 U.S. census defined race on the basis of a person’s self-identification. The most frequently used racial categories in data reported from the census are White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander. In addition to these racial categories, the census also included categories based on national origin and allowed individuals to select more than one racial category.

To the extent that race is biologically determined, racial differences in functioning in adulthood and aging may reflect differences in genetic inheritance. People who have inherited a risk factor that has been found to be higher within a certain race are more likely to be at risk for developing that illness during their adult years.

Racial variations in risk factors may also interact with different cultural backgrounds associated with a particular race. For example, people at risk for a disease with a metabolic basis (such as inability to metabolize fats) will be more likely to develop that disease if cooking foods high in fat content are a part of their culture.

Social and cultural aspects of race may also alter an individual’s development in adulthood through the structure of a society and whether there are systematic biases against people who identify with that race. As we will demonstrate throughout this book, many illnesses have a higher prevalence among the African American population than among the White population in the United States, and this has led to significant disparities in the health of the two groups. Part of the differences in health may be attributed to lack of opportunities for education and well-paying jobs, but systematic discrimination is also believed to take a toll on health by increasing the levels of stress experienced by African Americans (Green & Darity, 2010).

Ethnicity

The concept of ethnicity captures the cultural background of an individual, reflecting the predominant values, attitudes, and expectations in which the individual has been raised. Along with race, ethnicity is often studied in adult development and aging as an influence on a person’s familial attitudes and experiences. For example, people of certain ethnic backgrounds are thought to show greater respect for older adults and feel a stronger sense of obligation to care for their aging parents. Ethnicity also may play a role in influencing the aging of various physiological functions, in part through genetic inheritance, and in part through exposure to cultural habits and traditions. Finally, discrimination against people of certain ethnic backgrounds may serve the same function as race in limiting the opportunities for educational and occupational achievements.

The term ethnicity is gradually replacing the term race as a categorical variable in social research. We will follow that tradition in this book unless there is a clear-cut reason to refer specifically to race (i.e., if we are describing research that also uses this term). However, there are occasional points of confusion in that the U.S. census occasionally combines race (White or Black) and ethnicity (Hispanic or non-Hispanic). Many census statistics break down the distributions they report into White non-Hispanic, White Hispanic, Black non-Hispanic, and Black Hispanic.
Socioeconomic Status

Socioeconomic status (SES), or “social class,” reflects people’s position in the educational and occupational ranks of a society. Technically, SES is calculated through a weighted formula that takes into account a person’s highest level of education and the prestige level of his or her occupation. There is no one set way to calculate SES, however. Various researchers have developed scales of socioeconomic status that give differing weights to these values in coming up with a total score. People with higher levels of education tend to have occupations that are higher in prestige, and so some researchers use level of education alone as the index of SES.

Income levels are not necessarily associated with socioeconomic status. High-prestige jobs (such as teachers) are often associated with mid- or even low-level salaries. However, as a proxy for or in addition to SES, some researchers use income as the basis for analyzing social class differences in health and opportunities.

SES is an exceptionally important, but often unrecognized, influence on the aging process. In our book, we will highlight studies that connect aging with SES. One in particular stands out because of its size, length of time of follow-up, and complexity. This is the landmark investigation known as Whitehall II, a survey of a large sample of British adults focusing on the relationships among health, social class, and occupation. Whitehall I (the original study) was established in 1967 and involved 18,000 men working in civil service occupations in the United Kingdom. This study showed that the men in the lowest employment brackets had poorer health than their health habits would predict. In 1985, Professor Sir Michael Marmot and a team of investigators from University College London set out to determine other factors that might contribute to the poorer health of both men and women at the lower ends of the socioeconomic scale. By 2008, the study had generated a wealth of data (Council of Civil Service Unions/Cabinet Office, 2004), and Marmot’s appointment in 2005 to the World Health Organization Commission on Social Determinants of Health is moving the findings squarely into global public policy.

Religion

Religion, or an individual’s identification with an organized belief system, is surprisingly one of the least well-understood but presumably important influences on aging. Organized religions form a set of social structures that transcend nationality and which, additionally, are partly connected with race and ethnicity. More important, religion provides many people with a source of coping strategies, social support in times of crisis, and a systematic basis for interpreting life experiences (Klemmack et al., 2007).

Religion is distinct from spirituality, or the set of beliefs than an individual holds about such areas as the afterlife, a sense of meaning in life, and feelings of connections to others. Spirituality and its relationship to psychological well-being in later life is becoming an increasing focus of researchers in the field and will undoubtedly grow in importance over the coming years (Tomás, Sancho, Galiana, & Oliver, 2015).

THE BABY BOOMERS GROW UP: CHANGES IN THE MIDDLE-AGED AND OLDER POPULATIONS IN THE UNITED STATES AND THE WORLD

A quick snapshot of the U.S. population according to age and sex appears in Figure 1.6 (Ortman, Velkoff & Hogan 2014). The age–sex structure provides a useful way of looking at the population. A “young” population is shaped like a pyramid, an “old” population is depicted by an upside-down pyramid, and a population considered stable is shaped like a rectangle.

You can clearly see in this figure the prominence of the Baby Boom generation, the term used to describe people born in the post-World War II years of 1946 to 1964. This period really did represent a “boom” in that more babies were born in 1946 than ever before (3.4 million); more than 4 million were born every year from 1954 to 1964. By then, the Baby Boom generation made up nearly 40% of the entire U.S. population.

We now have several other terms for generations of Americans born in other decades, including the “Silent Generation” (those in their teens in the 1950s), the “Greatest Generation” (those who fought in World War II), “Gen X” (the children of the Baby Boomers), and the Millennials, also called “Gen Y,” born in the 1990s, at the tail end of the Gen Xers. The assumption with this terminology is that you are defined in important ways by the year of your birth, clearly an overgeneralization. Nevertheless, the terms persist and at least for the Baby Boomers, they will most likely never go away.

What’s important about the Baby Boom generation, apart from whatever it might mean in terms of defining any one individual, is the preponderance of individuals of similar ages moving through the population together. Not only do these groups share certain historical events, but they also create their own set of dilemmas (Whitbourne & Willis, 2006). We will learn later in the book about the
implications for the economy, for example, of having so many people reach their 60s at similar times.

**United States**

In 1900, the number of Americans over the age of 65 years was 3.1 million people, making up about 4% of the population. By 2015, the number of people 65 and older in the United States was estimated to be 47.8 million, or 14.9% of the total population (U.S. Bureau of the Census, 2015a). Figure 1.7 shows the growth of the total 65 and older population as well as the rise of those in the 85 and older category.

By 2050, the U.S. Bureau of the Census estimates that there will be 88 million adults 65 and older, representing 22% of the total population; the 85 and older adults alone will number 18.9 million or 4.8% of the population (U.S. Bureau of the Census, 2015a). Perhaps most impressive is the estimate in the growth in the number of centenarians. In 1990, an estimated 37,306 people over the age of 100 lived in the United States. By 2015, this number had increased to 72,000; by 2050 it will increase eight times to 387,000 (Howden & Meyer, 2011; U.S. Bureau of the Census, 2015a).

The major explanation for these large increases in the 65 and older population can be accounted for by the movement of the Baby Boomers through the years of middle and later adulthood. It is important to consider not just that these individuals were born during a period of high birth rates but that they are expected to live into their 80s, 90s, and 100s. This will increase the number of very-old individuals that society will experience throughout the century.

Increases in the aging population reflect the vast advances that have taken place in the average length of life. *Life expectancy* is the average number of years of life remaining to the people born within a similar period.
of time. To calculate life expectancy, statisticians take into account death rates for a particular group within the population and use these figures to project how long it will take for that entire group to die out completely. Life expectancy is not the same as life span, which is the maximum age for a given species. The life span of humans has not changed, but more people are living to older ages, leading to the life expectancy increase we are currently witnessing.

Life expectancy from birth rose overall from 62.9 years in 1940 to 78.8 years in 2013. Many factors have contributed to increases in life expectancy, including reduced death rates for children and young adults. People are also living longer once they reach the age of 65, at which point the life expectancy becomes 84.3 years of age (i.e., people turning 65 in 2013 could expect to live an additional 19.3 years) (National Center for Vital Statistics, 2015).

A related concept is health expectancy, which is the number of years a person could expect to live in good health and with relatively little disability if current mortality and morbidity rates persist. The ideal situation in a given society is that individuals have both long health and life expectancy, meaning that they are able to be productive and free of chronic illness until close to the time that they die. This is also called compression of morbidity, meaning that the illness burden to a society can be reduced if people become disabled closer to the time of their death (Vita, Terry, Hubert, & Fries, 1998).

**Geographic Variations Within the United States.** As you can see from Figure 1.8, the over-65 population of the United States population is very unevenly distributed geographically. As of 2013, slightly over one half of persons 65 and over lived in 13 states. With 4.8 million people 65 and older, California has the largest number of older adults, but because the state’s population is so large, this age group constitutes a relatively small proportion (12.5%) of the population. As you may have guessed, Florida has the highest percentage of people 65 and older (18.7%). The greatest increases in percentage of aging population between the years 2003 to 2013 occurred in the states of Alaska (61.7%), Nevada (50.7%), and Colorado (46.8%) (Administration on Aging, 2015).
Gender and Racial Variations in the Over-65 Population.
Women over the age of 65 currently outnumber men, amounting to approximately 56% of the total over-65 population. This gender disparity is expected to diminish somewhat by the year 2050 as the last of the Baby Boomers reach advanced old age. At that time, 55% of the 65 and older population in the United States will be female (U.S. Bureau of the Census, 2015a).

Changes are also evident in the distribution of White and minority segments of the population. In 2013, 21.2% of all persons in the United States 65 and older were members of racial or ethnic minority populations; persons of Hispanic origin represented 7.5% (Administration on Aging, 2015). Between 2012 and 2050, there will be dramatic shifts in the racial/ethnic distribution of the 65 and older population of the United States. As shown in Figure 1.9, the percentage of those 65 and older who are non-minority (shown as “White”) will decrease from 86% to 77%; correspondingly, all other racial and ethnic groups will increase. People of Hispanic origin will show the largest overall increase across this period, from 7.3% to 18.4% (Ortman et al., 2015).

Aging Around the World
Data from around the world confirm the picture of an increasingly older population throughout the 21st century. In 2015, the U.S. government estimates that there were 616 million people worldwide over the age of 65. Predictions suggest that this number will triple to 1.57 billion by the year 2050. China currently has the largest number of older adults (137 million), but Japan has the highest percentage of people 65 and older (27%); (U.S. Bureau of the Census, 2010b; U.S. Bureau of the Census, 2015b).

World population statistics are often reported in terms of “developed” and “developing” countries. Developed countries include all those in Europe, North America, Japan, Australia, and New Zealand, plus some nations...
FIGURE 1.9
Population Age 65 and Over, by Race and Hispanic Origin, 2008 and Projected 2050

![Population Age 65 and Over, by Race and Hispanic Origin, 2008 and Projected 2050](image)

Note: Percentages do not add up to 100% within each year shown due to overlap of racial and ethnic categories, taking Hispanic origin into account.


Formerly in the Soviet Union. All other nations of the world are classified as developing (Kinsella & He, 2009). The developing countries are those that have an agrarian-based economy, typically with lower levels of health care, education, and income.

The population worldwide is aging at disproportionate rates within the developed and developing nations. Figure 1.10 includes the 60 and older population and shows the dramatic rise within developing nations in the century from 1950 to 2050 (United Nations Population Fund, 2012). The rise in the developing nations will particularly outpace that of the developed nations among those 80 years and older. By 2050, China will have 90 million people 80 years and older, and India will overtake the United States as having the second highest number of people in their 80s and older (37 million). Indonesia and Mexico will join the list of countries with the highest population of 80-year-olds and up. There will be an astonishing 3.4 million people 100 years and older by 2050, and 20.1 million by 2100 (United Nations, Department of Economic and Social Affairs, Population Division, 2013).

The larger proportion of the aging population in the world will place a strain on the economies and health care systems of all nations but particularly developing nations (Kinsella & He, 2009).

What are the implications of these figures for your future as you enter into and move through your adult years? First, you will likely have more friends and associates than the current older population does, simply because there will be more peers of your age group to socialize with. If you are male, the news is encouraging; you will be more likely to live into old age compared to the current cohorts of older adults. For those of you who are younger than the Baby Boomers, the statistics are also encouraging if you are considering a career related to the field of aging, given the higher number of older clientele. Changes in various aspects of lifestyle can also be expected in the next decades, as adjustments to the aging population in the entertainment world and media are made. Just as society is getting used to the idea of an aging Paul McCartney, many others will follow in his footsteps to change views about prominent celebrities in Western society and, indeed, around the world.
FIGURE 1.10
Number of People Aged 60 and Older: World, Developed, and Developing Countries, 1950–2050


Note: The group of “developed countries” corresponds to the “more developed regions” of the World Population Prospects: The 2010 Revision, and the group “developing countries” corresponds to the “less developed regions” of the same publication.

SUMMARY

1. This book uses the biopsychosocial perspective, which regards development as a complex interaction of biological, psychological, and social processes. The four principles of adult development and aging include the assumptions that changes are continuous over the life span; only the survivors grow old; individual differences are important to recognize; and “normal” aging is different from disease. Distinctions must be drawn between primary aging (changes that are intrinsic to the aging process) and secondary aging (changes due to disease).

2. It is difficult to define the term “adult” given the range of possible criteria. For purposes of this book, we will consider the ages of 18–22 to serve as a rough guideline. The over-65 population is generally divided into the subcategories of young-old (65–74), old-old (75–84), and oldest-old (85 and over). Centenarians include individuals 100 and older, and supercentenarians are those 110 and older. These divisions have important policy implications as well as highlight the need to make distinctions among individuals over 65.

3. The idea of functional age bases age on performance rather than chronological age. Additionally, biological, psychological, and social age all provide alternative perspectives to describe an individual. Whereas personal aging refers to changes within the individual over time, social aging refers to the effects of exposure to a changing environment and includes normative age-graded influences, normative history-graded influences, and nonnormative influences.

4. Social factors important to the study of adult development and aging include gender, race, ethnicity, socioeconomic status, and religion.

5. Society will experience a great impact as the Baby Boom generation begins to enter older adulthood. 47.8 million Americans are over the age of 65, constituting 14.9% of the total U.S. population; these numbers are expected to rise dramatically in the coming years as a result of the Baby Boomers. Gender and racial variations are also expected to change. Countries around the world will show increases in the over-65 population as well, particularly among developing countries. These changes will impact the way in which you view your own later adulthood, as well as prepare for what will happen in your later years.